

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

Claims 1 through 10 (Canceled)

Claim 11 (Currently amended): A method of forming a thermal barrier coating (26) on a surface of a component (10), the method comprising the steps of:

forming the thermal barrier coating (26) at an elevated temperature by co-evaporating carbon and a thermal-insulating material to deposit elemental carbon in pores (32) that are within grains and at and between grain boundaries of the thermal-insulating material, the pores (32) establishing an open porosity within the thermal barrier coating (26); and then

partially sintering the thermal barrier coating (26) to evolve a carbon-containing gas from at least some of the elemental carbon and then close at least some of the pores (32) to entrap the carbon-containing gas within the

closed pores (32), the elemental carbon and/or the carbon-containing  
~~insoluble~~ gas being present in an amount sufficient to thermally stabilize the  
microstructure of the thermal-insulating material.

Claim 12 (Original): A method according to claim 11, wherein the  
forming step comprises depositing the thermal barrier coating (26) by electron  
beam physical vapor deposition during which an ingot of the thermal-insulating  
material and a second ingot of a carbon-containing or carbide-containing  
material are simultaneously evaporated.

Claim 13 (Original): A method according to claim 12, wherein the  
second ingot comprises graphite.

Claim 14 (Previously presented): A method according to claim 11  
wherein the open porosity within the thermal barrier coating (26) constitutes at  
least 25 volume percent of the thermal barrier coating (26).

Claim 15 (Previously presented): A method according to claim 11,  
wherein the pores (32) containing the carbon-containing gas are resistant to

sintering, grain coarsening and pore redistribution.

Claim 16 (Canceled)

Claim 17 (Previously presented): A method according to claim 11, wherein the sintering step is performed at a temperature of at least 950°C.

Claim 18 (Previously presented): A method according to claim 11, wherein the sintering step forms additional pores (32) that entrap the carbon-containing gas.

Claim 19 (Previously presented): A method according to claim 18, wherein the sintering step is performed at a temperature of at least 950°C.

Claim 20 (Original): A method according to claim 11, wherein the thermal-insulating material is yttria-stabilized zirconia and the thermal barrier coating (26) comprises columnar grains (30).

Claims 21 through 25 (Canceled)